ANSWERING SYSTEM FOR CUSTOMER SERVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an answering system and, more

5   particularly, to an answering system for quickly providing answers to a

customer's questions ~~an/or complaint~~ and/or complaints.

2. Description of Related Art

For providing better services to customers, more and more companies

provide toll free phone numbers. As such, customers can call the toll free

10   telephone to ask questions ~~an/or~~ and/or express complaints. A well-known

answering system for customer service is shown in FIG. 1. As shown, the

system comprises an exchange 110, a recording device 120, a server

controller 130, a custom database 140, and a plurality of terminals 150

operated by operators. In response to a toll free phone call from a person

15   (i.e., front-end customer) by using a cellular phone or a typical telephone,

the call is forwarded to the exchange 110 through a PSTN (Public Switch

Telephone Network). In the exchange 110, a message is generated and sent

to the server controller 130. In the server controller 130, the message is then

sent to the terminal 150 being used by an operator based on ~~a on-duty~~ an

20   on-duty shift list. At the same time, a physical link is established among the

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toll free phone call and the terminal 150 and the recording device 120. Thus, the operator can answer question(s) and/or listen to a complaint from the customer while the recording device 120 is recording the above conversation. The operator will answer the questions directly if the operator

5   is able to. Otherwise, the operator will transfer the conversation recorded in a voice file to a customer service department (i.e., back-end customer) that will provide a satisfactory answer to the unanswered question thereafter and store it in a customer service database for future retrieval.

However, the prior art suffered from several disadvantages. For

10   example, a tag file containing basic data of a respective front-end customer was established by ~~asking~~ having the operator ask the front-end customer ~~by the operator~~ for the data while the conversation was going. Hence, such process is time consuming and even may cause unpleasantness of the front-end customer if he/she is not willing to reply to things asked by the

15   operator. Further, it is quite often that the tag file cannot link the voice file recorded in the recording device 120 in a short period of time. Typically, a tedious process of manually linking the tag file and the voice file together is required. In view of the above, the back-end customer needs more time to get all necessary information of a specific front-end customer together.

20   Thus, the goal of providing a quick, correct answer to the customer's

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question and/or complaint is compromised.

Therefore, it is desirable to provide a novel call answering system for customer service in order to mitigate and/or obviate the aforementioned problems.

5 ## SUMMARY OF THE INVENTION

The object of the present invention is to provide an answering system capable of automatically and quickly providing answers to a customer's questions ~~an/or complaint~~ and/or complaints.

An object of the present invention is to provide an answering system

10 comprising a database of back-end customers, an exchange, a plurality of terminals, a recording device, a data bus and a host. The database of back-end customers stores a plurality of records of back-end customers and each record includes a reply address. The exchange is electrically coupled to a PSTN and is adapted to receive a plurality of phone calls from the

15 PSTN simultaneously. Each answering phone call number is corresponding to one of the plurality of back-end customers. The data bus is electrically coupled to the database of back-end customer, the exchange, the terminals, and the recording device respectively. The host is electrically coupled to the data bus and ~~comprising~~ includes an ~~on-duty~~ on-duty shift list of a plurality

20 of operators operating the terminals, wherein in response to receiving a

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phone call from a front-end customer by the exchange, the host transfers the

call to one of the terminals based on the ~~on duty~~ on-duty shift list so that the

operator operating the dispatched terminal can converse with the front-end

customer, the recording device is commanded to record the conversation as

5   a voice file and generate an associated index, the host further searches the

database of back-end customer for finding a reply address of a back-end

customer to which the call being corresponding, and the host sends a reply

message associated with the associated index to the   corresponding

back-end customer subject to the reply address.

10   Other objects, advantages, and novel features of the invention will

become more apparent from the detailed description when taken in

conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 presents schematically a system architecture of a conventional

15   answering system for customer service;

FIG. 2 presents schematically a system architecture of an answering

system for customer service in accordance with the invention;

FIG. 3 is a flow chart illustrating a process in accordance with the

present invention;

20   FIG. 4 shows a screen of a terminal for servicing the custom phone call

in accordance with the present invention; and

FIGS. 5 to 9 are front plan views of a cellular phone illustrating steps of sending a short message in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

5 While the following description of a preferred embodiment of the invention details an answering system for customer service employed by a motor company, it is appreciated by those skilled in the art that the invention is equally applicable to any of other embodiments such as an answering system for assisting customers to buy stock adopted by a stock

10 company, an answering system for customer service adopted by an insurance company, or an answering system for customer service adopted by a credit card company.

With reference to FIG. 2, there is shown a system architecture for an answering system for customer service constructed in accordance with the

15 invention comprising an exchange 210, a database of front-end ~~customer~~ customers 220, a database of back-end ~~customer~~ customers 290, a plurality of terminals 230, a host 240, a recording device 250, an interactive voice responding device 260, an integration server 270, an interface server 280, and a data bus 3. The data bus 3 is electrically coupled to the database of

20 back-end customer 290, the exchange 210, the terminals 230, the recording

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device 250, and the host 240 respectively.

The exchange 210 receives a phone call from a PSTN. Each phone call number is corresponding corresponds to a back-end customer. The database of front-end customer customers 220 stores a plurality of records of

5   front-end customers. The database of back-end customer customers 290 stores a plurality of records of back-end customers and a plurality of reply addresses. The terminals 230 can process the call of a front-end customer who may ask questions an/or and/or express complaints.

The recording device 250 records the phone call of the front-end

10   customer in a voice file. The interactive voice responding device 260 stores a plurality of records of responding voice messages recorded by the back-end customers. When a call is received for a specific back-end customer answering service, according to the index of the back-end customer, the corresponding responding voice message will be played. The

15   integration server 270 integrates information from the exchange 210 and the host 240. The interface server 280 is an interface between the exchange 210 and the integration server 270 and operates similar similarly to the host 240.

With reference to FIG. 3, steps of a process of the invention will now be described in detail below. First, the exchange 210 determines whether an

20   incoming call has been received from the PSTN (step S301). If yes, the

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process goes to step S302. Otherwise, the process loops back to itself for

continuation. In step S302, the exchange 210 determines whether the

incoming call is initiated from a complainant (a front-end customer) by

using a cellular phone or a typical telephone and determines whether the

5   incoming call is corresponding corresponds to the toll free answering phone

number provided by a Yulon Motor Company, Ltd. (an a back-end

customer). If yes, the process goes to step S303. Otherwise, the process

jumps to step S311. In step S303, the exchange 210 fetch fetches the

number of the phone as an index of the person who dials the call (i.e., the

10   front-end customer). The toll free answering phone number provided by the

back-end customer is taken as an index of the back-end customer.

The exchange 210 comprises a circuitry for receiving a plurality of

calls from the PSTN simultaneously. For example, an exchange 210 such as

exchange 61C M1 by Nortel can receive up to 1,000 calls from the PSTN

15   simultaneously. The 1,000 numbers may be from 0800-000000 to

0800-000999 in which numbers 0800-000000 to 0800-000089 are reserved

as customer service telephone numbers of the Yulon Motor Company, Ltd.

(a back-end customer A), numbers 0800-000090 to 0800-000099 are

reserved as telephone numbers dialed by operators of the Yulon Motor

20   Company, Ltd. (the back-end customer A) for listening to voice files,

numbers 0800-000100 to 0800-000189 are reserved as customer service

numbers of a back-end customer B, and numbers 0800-000190 to

0800-000199 are reserved as telephone numbers dialed by operators of the

back-end customer B for listening to voice files.

5   When a ~~custom~~ customer (a front-end customer) who bought a product

of the Yulon Motor Company, Ltd. (back-end customer A) initiates a call to

the toll free number 0800-000000 provided by the Yulon Motor Company,

Ltd. (back-end customer A) by using a cellular phone (i.e., terminal)

numbered 0900-123456, the exchange 210 will create an ID_A tag of the

10   Yulon Motor Company, Ltd. (back-end customer A) and fetch the number

(e.g., 0900-123456) of the cellular phone as an index of the front-end

customer. (step 303)

        In step S304, the host 240 finds a corresponding data record from the

database of front-end customer 220 based on the index (0900-123456) of

15   the front-end customer. The data record of front-end customer may contain

information about name, telephone number, sex, birth date, address, and

other related data. The host 240 fetches a responding voice message of ~~the~~

Yulon Motor Company, Ltd. (back-end customer A) from the interactive

voice responding device 260 according to the tag ID_A. The responding

20   voice message of the Yulon Motor Company, Ltd. is sent to the mobile

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phone or the conventional telephone of the complainant (a front-end customer) by the exchange 210. The responding voice message will be played and the complainant (a front-end customer) will hear this responding voice message from the cellular phone or the conventional telephone. An

5 exemplary responding voice message may be: "Thank you for calling Yulon Motor Company. Please ask your question. ..."

The integration server 270 integrates information from the exchange 210 and the host 240. The interface server 280 is an interface between the exchange 210 and the integration server 270 and operates similar to the host

10 240. In step S305, the interface server 280 dispatches the data record of front-end customer and the call to the terminal 230 by referring to ~~a on-duty~~ an on-duty shift list (not shown). Also, the data record of the front-end customer is shown on the screen of the terminal 230 as illustrated in FIG. 4. As shown, basic data of the front-end customer has been displayed in

15 respective fields. Hence, there is no need for the operator to fill these fields out again by asking the front-end customer more questions. Moreover, case number 9876 in field A1 is automatically entered. In step S306, the host 240 commands the recording device 250 to record the conversation to be conducted immediately after the call is connected to the operator. The

20 recording device 250 will record the conversation in a voice file and will

take the case number (e.g., 9876) as an index of the voice file. For example, a voice file may be stored as ID_A_9876.MP3, where ID_A is the tag ID_A of the Yulon Motor Company, Ltd. (the back-end customer A) and 9876 is the case number of this customer service.

5   The operator enters an abstract of the conversation in field A2 (i.e., comments) on the terminal 230 while conversing with the front-end customer. The abstract is stored in a text file (e.g., ID_A_9876.TXT). In step S307, the interface server 280 links the voice file, the abstract text file ID_A_9876.TXT, and the data record of the front-end customer together

10   based on the index of the voice file (e.g., case number 9876 shown in field A1 of FIG. 4) so that the voice file can correspond to the abstract abstracted text file and the data record of the front-end customer. In other words, it is possible of searching to search a corresponding voice file, the abstract text file, and the data record of front-end customer by referring to the index (e.g.,

15   9876). In step S308, the recording device 250 stores the link of the voice file, the abstract of the text file, and the data record of the front-end customer based on the index of the voice file (e.g., 9876). The link can be used either for future retrieval by the back-end customer A when a customer service (i.e., call) is originated from by the back-end customer or for accessing the

20   voice file by the system software.

In step S309, the interface server 280 sends a message to the Yulon

Motor Company, Ltd. (the back-end customer A) based on a reply address

stored in the database of back-end customer 290. The message may be an

e-mail having content similar to that shown in FIG. 4 or a short message

5   having content similar to that shown in FIGS. 5 to 9. The reply address can

be a telephone number of the short message or an address of the e-mail.

The message may contain the index of the voice file (e.g., case number

9876 shown in FIG. 4 or FIG. 5). In such a manner, the Yulon Motor

Company, Ltd. (the back-end customer A) may know the message

10   containing the updated data of a front-end customer in substantially real

time as compared to a long waiting time for reply as experienced in the prior

art. Note that the Yulon Motor Company, Ltd. (the back-end customer A)

still can know the important content of the call by referring to the sent short

message even when the operator is <u>temporarily</u> not in <u>the</u> office

15   ~~temporarily~~.

In step S310, the interface server 280 creates a record of the Yulon

Motor Company, Ltd. (the back-end customer A) related to the voice file.

Further, the voice file, the abstract <u>of the</u> text file, and the data record of

front-end customer are either regularly sent to the Yulon Motor Company,

20   Ltd. (the back-end customer A) by e-mail or stored in a tape cassette or

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CD-ROM prior to sending to the Yulon Motor Company, Ltd. (the back-end customer A).

~~In a case of receiving~~ When the e-mail or short message is received by an operator of the Yulon Motor Company, Ltd. (the back-end customer A),

5   the operator will dial one of the numbers 0800-000090 to 0800-000099 for listening to the voice file. In step S311, the exchange 210 determines whether a call from a PSTN ~~is corresponding~~ corresponds to one of the numbers 0800-000090 to 0800-000099. If yes, the process goes to step S312. Otherwise, the process loops back to step S301. In step S312, the host

10   240 performs a verification procedure for determining whether the operator has the authority to listen the stored voice file of the Yulon Motor Company, Ltd. (the back-end customer A). The operator of the Yulon Motor Company, Ltd. (the back-end customer A) is required to input a username and a password for identification. The exchange 210 then fetches the username

15   and the password. The host 240 compares the username and the password with the content in an identification table to determine this username and password has authority to listen the corresponding voice file of the Yulon Motor Company, Ltd. (the back-end customer A). The identification table has a plurality of usernames and passwords, and each username and

20   password is corresponding to a back-end ~~custom~~ customer respectively. If

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the comparison is positive, the process goes to step S313. Otherwise, the process loops back to step S301.

In step S313, the interactive voice responding device 260 prompts an input voice file for inputting a number as an associated index of a corresponding voice file. The exchange 210 then fetches the associated index (e.g., case number 9876 shown in FIG. 4 or FIG. 5) and sends the associated index number to the host 240. The host 240 then sends the associated index to the recording device 250. Next, the recording device 250 searches a corresponding voice file from the database of voice file of the back-end customer A based on the associated index. In step S314, the recording device 250 plays the found corresponding voice file through the exchange 210.

In brief, the operator of the back-end customer A still can obtain a corresponding voice file of an ongoing call initiated by a customer by receiving an e-mail or short message by using a cellular phone through a PSTN even when the operator is not in office. As such the operator can answer the question asked by the customer in the call in a substantially real time manner. As a result, customer service is improved.

Although the present invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible

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modifications and variations can be made without departing from the spirit

and scope of the invention as hereinafter claimed.

ABSTRACT OF THE DISCLOSURE

An answering system ~~comprises~~ includes a database of back-end ~~customer~~ customers, a database of front-end ~~customer~~ customers, an exchange, terminals, a recording device, an interactive voice responding device, a data bus, and a host. In response to ~~receiving~~ receipt of a call from a front-end customer by the exchange, the host transfers the call to the terminal so that the operator can converse with the front-end customer, the recording device records the conversation as a voice file and ~~generate~~ generates an associated index, the host searches the database of back-end ~~customer for finding~~ customers to find a reply address ~~of~~ for the back-end customer based on the index, and the host sends a reply message associated with the index to the back-end customer. The system can provide answers to a customer's questions ~~an/or complaint~~ and/or complaints in a substantially real time manner.